

*iConverter*® 10/100M2 Media Converter  
and  
Network Interface Device



**STANDALONE AND PLUG-IN MODULE  
USER MANUAL**

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## 1.0 OVERVIEW

This document describes the installation and configuration of the *iConverter* 10/100M2 standalone Network Interface Device and plug-in modules. The difference between the module types are indicated using the following legend throughout this User Manual:

**SA** - Standalone

**PI** - Plug-In

### 1.1 GENERAL DESCRIPTION

The Omnitron *iConverter*® 10/100M2 is a carrier-class media converter and a Network Interface Device (NID) that provides 10BASE-T or 100BASE-TX (10/100) to 100BASE-FX Fiber media conversion with integrated management.

The 10/100M2 conforms to Ethernet in the First Mile (EFM) fiber standards to support Fiber-to-the-X (FTTX) Metropolitan access and Enterprise LAN networks. 10/100M2 media converters are used to provide managed copper demarcation points at the customer premises and network edge, offering service provisioning functions, such as Quality of Service and Bandwidth Control (rate-limiting) capabilities.

The IP-based remote management of the 10/100M2 can be accessed by Omnitron's *NetOutlook*® SNMP Network Management Software, third-party SNMP clients and Telnet. The management IP address is configured manually or as a DHCP client in the configuration menu. IP-less remote management is supported via 802.3ah OAM or Secure OAM protocol. A menu-driven CLI is accessible via Telnet, serial console port, or a modem connection to the serial console port.

#### IMPORTANT

This manual provides information on the installation and configuration of the module using the command line interface (serial console). For ongoing network management, Omnitron Systems recommends *NetOutlook*, an SNMP-based Network Management Software.

*NetOutlook* provides an efficient, user-friendly way to configure, monitor and manage devices installed on a single network or on a series of networks by providing an intuitive graphical display with real-time status and alarm (trap) information. The user can easily manage *iConverter* equipment on a large Enterprise network or Metropolitan Area network (MAN) from a single location without the need of additional resources.

**The firmware of the Network Management Module (NMM) and *NetOutlook* must be the same or greater than the firmware on the 10/100M2 for the module to be managed.**

#### 1.1.1 Advanced Features

The 10/100M2 features Port VLAN, Tag VLAN, Provider VLAN and QoS prioritization which are defined in the IEEE 802.1Q, 802.1ad and 802.1p specifications. Ethernet Virtual Connections can be configured with Provider VLAN to support E-Line and E-LAN connections on Metro Ethernet Networks.

Access to the management control can be restricted with the Port VLAN and Tag VLAN features, helping to prevent Denial-Of-Service (DoS) and unauthorized management access.

Other advanced features include:

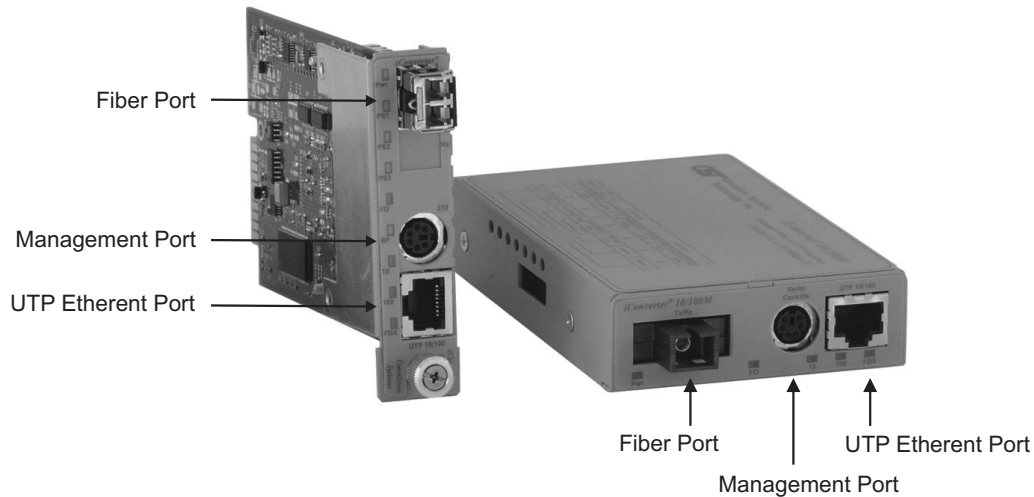
- Bandwidth Control (Rate Limiting)
- Real-time MIB statistics reporting (38 variables)
- 802.3ah OAM and Extensions
- SNMPv1, SNMPv2c and SNMPv3
- Layer 2 Control Protocol (L2CP) Filter
- Port Access Control
- cNode Level 1 Agent

Refer to the appropriate sections for configuration information.

## 2.0 PORT STRUCTURE

### 2.1 OVERVIEW

The front panel of the 10/100M2 provides access to the management (serial console), UTP and fiber ports. The fiber port will vary depending on the connector type; ST, SC, MT-RJ, LC or SFP supporting 100BASE-FX transceivers. The plug-in module features two additional Ethernet ports for connectivity via the chassis backplane.



#### 2.1.1 Management Port PI SA

The 10/100M2 features a Serial RS-232 Console Port (aka Craft Interface) which can be connected to a computer for initial setup and configuration. The Serial Console Port is accessed through the mini DIN-6 female DCE interface. Connect the interface to a computer's DB-9 serial port using the mini DIN-6 male to DB-9 female cable adapter (Part # 8082-0), which is included with the 10/100M2.

An optional DB-9 male to female straight-through serial cable is available for extension (Part # 8081-3).

#### 2.1.2 UTP and Fiber Ports PI SA

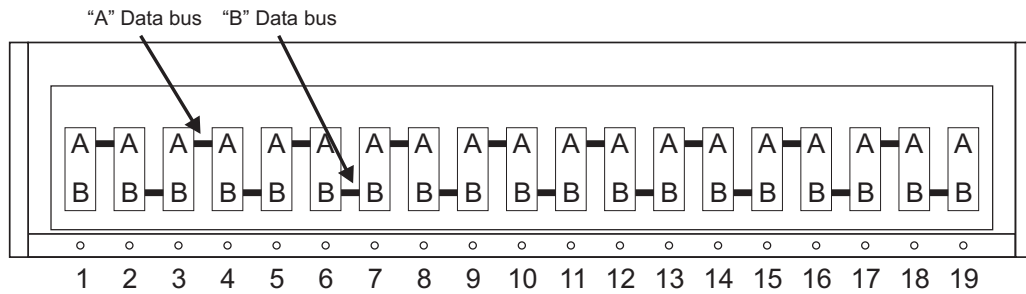
The UTP Ethernet port supports 10BASE-T and 100BASE-TX protocols, auto-negotiation and manual forced modes for half and full duplex. The UTP port can be enabled or disabled via network management. A disabled port will still connect and allow 802.3ah OAM communication, but blocks normal data traffic.

The fiber interface supports the 100BASE-FX protocol. The fiber interface operates in manual mode and supports half or full duplex operation. The fiber port can be enabled or disabled via network management. A disabled port will still connect and allow 802.3ah OAM or IP-less (secure) OAM communication, but blocks normal data traffic.

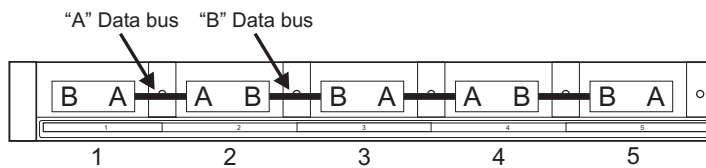
#### 2.1.3 Backplane Ethernet Ports PI

The plug-in module supports two additional 10/100Mbps Ethernet Backplane Ports. The Backplane Ports A and B allow Ethernet data connectivity between adjacent modules in an *iConverter* chassis. The two backplane ports can be disabled or enabled via a DIP-switch or network management.

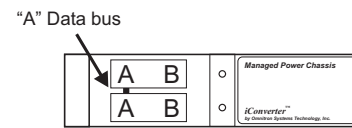
The *iConverter* 19-Module, 5-Module, 2-Module and 1-Module Redundant Chassis backplanes provide ethernet data connectivity between adjacent slots or ports. The A and B backplane ports connect the slots as illustrated.



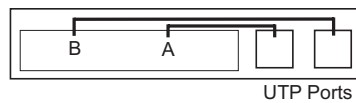
**19-Module Chassis**



**5-Module Chassis**



**2-Module Chassis**



**1-Module Redundant Chassis**

## 3.0 INSTALLATION PROCEDURE

### 3.1 OVERVIEW

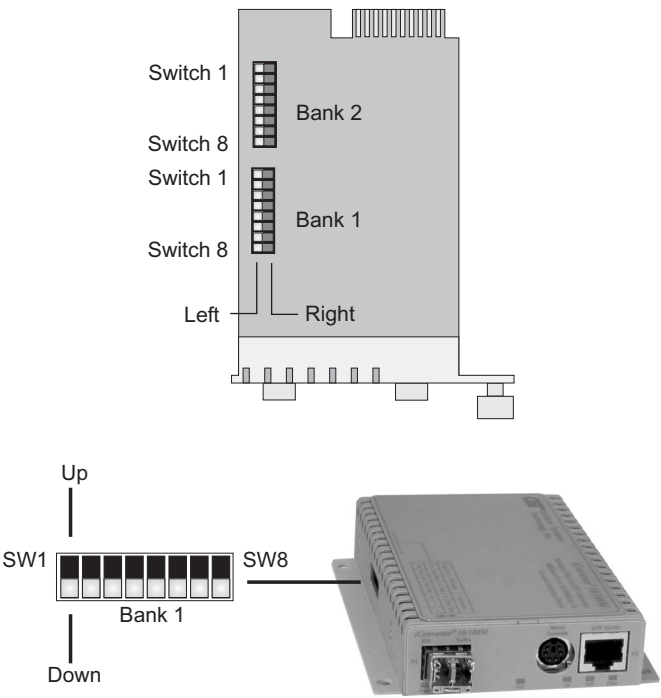
The following steps outline the installation and configuration procedures for the 10/100M2. Refer to the specified sections for detailed instructions.

- Configure DIP-switches (Section 3.2)
- Installing the Module and Connecting Cables (Section 3.3)
- Configure Module via Command Line Interface (Section 3.4)
- Verify Operation (Section 3.5)

When the setup and configuration procedures are completed, the 10/100M2 has been configured with the basic setup requirement for standard operation. To configure the module with additional features, see Section 4.0, "Detailed Module Configuration".

### 3.2 CONFIGURING DIP-SWITCHES PI SA

The 10/100M2 plug-in module has two board-mounted DIP-switches. The standalone unit has one bank of DIP-switches. The locations of the DIP-switches are illustrated below.



*DIP-switch Locations*

#### 3.2.1 Board-Mounted Bank 1 Settings PI SA

DIP-switch Bank 1 is available on both the plug-in and standalone modules. The table indicates the position of the switch; Left/Down or Right/Up. As indicated in the DIP-switch location diagram, Left and Right refers to the plug-in module and Down and Up refers to the standalone module.

PI (Left/Right) SA (Up/Down)

Switch	Left/Down (Factory Default)	Right/Up
SW1	Off: Pause Disable	On: Pause Enable
SW2	FDX: Fiber Full-Duplex	HDX: Fiber Half-Duplex
SW3	AN: UTP Auto-Negotiate	Man: UTP Manual
SW4	100: UTP 100Mbps	10: UTP 10Mbps
SW5	FDX: UTP Full-Duplex	HDX: UTP Half-Duplex
SW6 - SW8	See Link Mode DIP-Switch Table in Section 3.2.1.6	

##### 3.2.1.1 SW1 - Pause Disable/Enable “Off/On”

When a port is operating in auto-negotiation, its Pause operation mode is determined by the Pause capability advertised during auto-negotiation between itself and the link partner. The port advertises its Pause capability during auto-negotiation based on the Pause Disable/Enable DIP-switch setting. Setting the Pause DIP-switch to

the “Off” position (factory default) forces the port to negotiate to No Pause mode with its link partner. Setting the Pause DIP-switch to the “On” position allows the port to negotiate to Symmetrical Pause or No Pause mode with its link partner.

When a port is operating in Manual mode, its Pause operation mode is based on the Pause Disable/Enable DIP-switch setting. Setting the Pause DIP-switch to the “Off” position (factory default) forces the port to operate in No Pause mode. Setting the Pause DIP-switch to the “On” position allows the port to operate in Symmetrical Pause mode.

### 3.2.1.2 SW2 - Fiber Full/Half-Duplex “FDX/HDX”

When the DIP-switch is in the Full Duplex “FDX” position (factory default), the fiber port will facilitate a connection that supports Full-Duplex operation. Setting this DIP-switch to Half-Duplex “HDX” facilitates a connection that supports only Half-Duplex.

### 3.2.1.3 SW3 - UTP Auto/Manual Negotiate “AN/Man”

When the DIP-switch is in the UTP auto-negotiate “AN” position (factory default), the UTP port automatically determines the speed and duplex mode of the connecting UTP device. If the connecting UTP device cannot provide the proper signal to indicate its own mode of operation, this DIP-switch should be set to the UTP Manual mode “Man” position. Manual mode requires manually configuring the UTP port to match the speed and the duplex mode of the connecting UTP device using the “10/100” and UTP “FDX/HDX” DIP-switches. Refer to the table below for a detailed explanation.

PI SA

Switch SW3	Switch SW4	Switch SW5	Function
AN	100	FDX	The UTP port is set to auto-negotiation with the following modes advertised: 100F, 100H, 10F, 10H
AN	100	HDX	The UTP port is set to auto-negotiation with the following modes advertised: 100H, 10F, 10H
AN	10	FDX	The UTP port is set to auto-negotiation with the following modes advertised: 10F, 10H
AN	10	HDX	The UTP port is set to auto-negotiation with the following modes advertised: 10H
MAN	100	FDX	The UTP port is set to manual negotiation and is forced to: 100F
MAN	100	HDX	The UTP port is set to manual negotiation and is forced to: 100H
MAN	10	FDX	The UTP port is set to manual negotiation and is forced to: 10F
MAN	10	HDX	The UTP port is set to manual negotiation and is forced to: 10H

### 3.2.1.4 SW4 - UTP 10/100Mbps “10/100”

When the UTP “AN/Man” DIP-switch (described above) is in the manual “Man” position, the “10/100” DIP-switch determines the speed of operation for the UTP port. Setting the “10/100” DIP-switch to UTP

100Mbps “100” position (factory default) forces the UTP port to operate at 100Mbps. Setting this DIP-switch to UTP 10Mbps “10” position forces the UTP port to operate at 10Mbps. Adjust the “10/100” DIP-switch to match the speed of the connecting UTP device.

When the UTP “AN/Man” DIP-switch is in the auto-negotiate “AN” position and the UTP 10/100 DIP-switch is in the “100” position, the UTP port auto-negotiates to 100Mbps or 10Mbps. When in the “10” position, the UTP port only operates at 10Mbps. Refer to the table above for a detailed explanation.

### 3.2.1.5 SW5 - UTP Full/Half Duplex “FDX/HDX”

When the UTP “AN/Man” DIP-switch is in the manual “Man” position, the UTP Full/Half-Duplex “FDX/HDX” DIP-switch determines the duplex operation mode of the UTP port. Setting the UTP Full/Half-Duplex DIP-switch to UTP Full-Duplex “FDX” position (factory default) forces the UTP port to operate in Full-Duplex. Setting this DIP-switch to UTP Half-Duplex “HDX” forces the UTP port to operate in Half-Duplex. Adjust the UTP Half/Full-Duplex DIP-switch to match the duplex mode of the connecting UTP device.

When the UTP “AN/Man” DIP-switch is in the auto-negotiate “AN” position, and the UTP Full/Half-Duplex DIP-switch is in the Full-Duplex “FDX” position, the UTP port auto-negotiates to Full or Half-Duplex. When in the Half-Duplex “HDX” position, the UTP port functions only in Half-Duplex for the speed selected. Refer to the table on the previous page for a detailed explanation.

### 3.2.1.6 SW6, SW7, SW8 - Link Modes

These three DIP-switches configure the link mode settings. The following table details possible Link Mode DIP-switch configurations.

PI

SW6	SW7	SW8	Result
Left	Left	Left	Link Segment mode (LS)
Right	Left	Left	Link Propagate mode (LP)
Left	Right	Left	Remote Fault Detection mode plus Link Segment mode (RFD+LS)
Right	Right	Left	Remote Fault Detection mode plus Link Propagation mode (RFD+LP)
Left	Left	Right	Symmetrical Fault Detect mode (SFD)
Right	Left	Right	Asymmetrical LP P1 to P2 (ALP P1-P2)
Left	Right	Right	Asymmetrical LP P2 to P1 (ALP P2-P1)
Right	Right	Right	Asymmetrical RFD+LP P1 to P2

SA

SW6	SW7	SW8	Result
Down	Down	Down	Link Segment mode (LS)
Up	Down	Down	Link Propagate mode (LP)
Down	Up	Down	Remote Fault Detection mode plus Link Segment mode (RFD+LS)
Up	Up	Down	Remote Fault Detection mode plus Link Propagation mode (RFD+LP)
Down	Down	Up	Symmetrical Fault Detect mode (SFD)
Up	Down	Up	Asymmetrical LP P1 to P2 (ALP P1-P2)
Down	Up	Up	Asymmetrical LP P2 to P1 (ALP P2-P1)
Up	Up	Up	Asymmetrical RFD+LP P1 to P2

**NOTE: Connecting two converters which are set to any of the RFD modes are illegal and will cause a “deadly embrace” lockup.**

**NOTE: It is recommended to keep the LS setting (default) until initial configuration is complete.**

For detailed information on the operation of the different Link Modes, download the application note “iConverter Link Modes” available on Omnitron’s web page:

<http://www.omnitron-systems.com/downloads.php>



### 3.2.2 Board-Mounted Bank 2 Settings PI

DIP-switch Bank 2 is only available on the plug-in module.

Switch	Left (Factory Default)	Right
SW1	<b>A-DS:</b> Backplane Port A Disabled	<b>A-EN:</b> Port A Enabled
SW2	<b>B-DS:</b> Backplane Port B Disabled	<b>B-EN:</b> Port B Enabled
SW3	<b>Reserved</b>	<b>Reserved</b>
SW4	<b>M/SL:</b> Master/Slave Auto-Select	<b>SL:</b> Slave-Mode Only
SW5 - SW8	<b>Reserved</b>	<b>Reserved</b>

#### 3.2.2.1 SW1 - Backplane Port A Enabled “A-DS/A-EN”

When the DIP-switch is in the Left “A-DS” position (factory default), Backplane Port A of the 10/100M2 is isolated from the chassis Backplane. When the DIP-switch is in the Right “A-EN” position, Backplane Port A of the 10/100M2 is enabled. This port allows Ethernet Backplane connectivity to an adjacent module via the chassis Backplane Port A. See the backplane illustrations in Section 2.1.3.

#### 3.2.2.2 SW2 - Backplane Port B Enabled “B-DS/B-EN”

When the DIP-switch is in the Left “B-DS” position (factory default), Backplane Port B is isolated from the chassis Backplane. When the DIP-switch is in the Right “B-EN” position, Backplane Port B is enabled. This port allows Ethernet Backplane connectivity to an adjacent module via the chassis Backplane Port B. See the backplane illustrations in Section 2.1.3.

#### 3.2.2.3 SW4 - Master/Slave Auto-Select and Slave-Only “M/SL / SL

When multiple management modules such as the *iConverter* NMM and the 10/100M2 (or multiple self-managed modules such as the 10/100M2) are installed in the same chassis, only one management module can act as the chassis master. The master management module has the ability to make changes to the settings of the other modules in the chassis, while the slave management modules cannot make the changes. If an NMM is installed in the chassis, the NMM will always be the master, otherwise the lowest slot number with a management module installed will become chassis master.

When this DIP-switch is in the Left “M/SL” position (factory default), the assignment of mastership is automatically negotiated by the installed management modules. To designate a specific management module as the master when no NMM is installed in the chassis, set the DIP-switch on the master module to the Left “M/SL” position, and set the other installed management modules’ DIP-switches to the Right “SL” position to enable Slave-Only mode.

Only the chassis master can change configuration settings of other modules.

#### 3.2.2.4 SW3, SW5, SW6, SW7, SW8 - Reserved

These DIP-switches are for factory use only.

**NOTE: DIP-switches marked Reserved must be kept in the Left (factory default) position.**

### 3.3 INSTALLING PLUG-IN MODULES AND CONNECTING CABLES

PI

- a. Carefully slide the module into an open slot in the chassis. Align the module with the installation guides and ensure that the module is firmly seated against the backplane. Secure the module by fastening the front panel thumbscrew (push in and turn clockwise to tighten) to the chassis front. Verify the “Pwr” LED is ON (indicating the chassis is powered).

SA

- a. The 10/100M2 standalone Network Interface Device (NID) is available in tabletop and wall-mounting models. For wall-mounting, attach the NID to a wall, backboard or other flat surfaces. For tabletop installations, place the unit on a flat level surface. Attach the rubber feet to the bottom of the NID to prevent the unit from sliding. Make sure the unit is placed in a safe, dry and secure location.

To power the unit using the AC/DC adapter, connect the AC/DC adapter to the AC outlet. Then connect the barrel plug at the end of the wire on the AC/DC adapter to the 2.5mm DC barrel connector (center-positive) on the unit. Confirm that the unit has powered up properly by checking the power status LED located on the front of the unit.

To power the unit using a DC power source, prepare a power cable using a two-conductor insulated wire (not supplied) with a 14 AWG gauge minimum. Cut the power cable to the length required. Strip approximately 3/8 of an inch of insulation from the power cable wires. Connect the power cables to the 10/100M2 standalone unit by fastening the stripped ends to the DC power connector.

Connect the power wires to the DC power source. The Power LED should indicate the presence of power.

**WARNING:** Note the wire colors used in making the positive and negative connections. Use the same color assignment for the connection at the DC power source.

**NOTE:** If mounting with a safety ground attachment, use the safety ground screw at the rear of the unit.

PI

SA

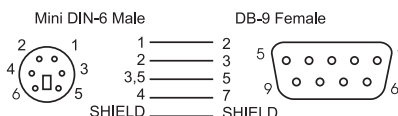
- b. When using a 10/100M2 SFP model, insert the SFP Fiber transceiver into the Port 1 SFP receptacle on the 10/100M2.

**NOTE:** The release latch of the SFP Fiber transceiver must be in the closed (up) position before insertion.

- c. Connect the UTP port via a Category 5 or better cable to a 10BASE-T or 100BASE-TX Ethernet device.
- d. Connect the appropriate multimode or single-mode fiber cable to the fiber port of the installed module. It is important to ensure that the transmit (Tx) is attached to the receive side of the device at the other end and the receive (Rx) is attached to the transmit side. Single-fiber (SF) media converter models operate in pairs. The Tx wavelength must match the Rx wavelength at the other end and the Rx wavelength must match the Tx wavelength at the other end.

### 3.4 CONFIGURE THE MODULE VIA COMMAND LINE INTERFACE PI SA

To configure, attach the 10/100M2 to a DB-9 serial (RS-232) equipped computer with terminal emulation software such as HyperTerminal. The 10/100M2 Serial Console Port (DCE) is a mini DIN-6 female connector which can be changed to a DB-9 connector with the included adapter (Part #8082-0). Attach the ends of a serial cable to the serial port of the PC and the Serial Console Port of the 10/100M2. This is a standard asynchronous serial interface. The pin-outs are illustrated below.



*Serial Connector Pin Outs*

Start HyperTerminal and select the correct COM Port in the HyperTerminal “Connect To:” window.

Set the PC’s serial port to the following:

Bits Per Second:	57,600
Stop Bits:	1
Data Bits:	8
Parity:	NONE
Hardware Flow Control:	NONE

Power the chassis containing the 10/100M2 module and press `<ENTER>` to bring up a command line prompt on the attached PC.

The module is configured with the following defaults:

#### **IP**

IP Address:	192.168.1.220
IP Subnet Mask:	255.255.255.0

#### **Passwords**

Serial:	No password assigned
FTP:	No password assigned
Telnet:	public

#### **SNMPv1/v2c Communities**

READ:	public
WRITE:	public

#### **SNMPv3 Parameters**

User 1 name (read only):	guest		
User 2 name (read/write):	admin		
User 1 Privacy pwd:	publicguest	User 1 Authen pwd:	publicguest
User 2 Privacy pwd:	privateadmin	User 2 Authen pwd:	privateadmin

The **Management Options** screen will be displayed.

PI SA

```
Management Options                                iConverter, Serial Agent

Network Management
1: Chassis and Module Management
2: Set Module Identifier

Management Module Preferences
3: IP and Control Preferences
4: SNMP Preferences
5: Abandon Preference Changes
6: Save Preference Changes
7: Restore to Factory Defaults
8: Restart Management Module
9: Other Networking Features

Management Module Maintenance
10: Firmware Update
11: Set Date/Time

IP Address      = 192.168.1.220
Chassis Number = 1

Enter Choice, (H)elp, E(x)it >
```

A new 10/100M2 module does not have a password, and will skip the **Password Entry** screen and go straight to the **Management Options** screen. If a password has been set, the **Password Entry** screen will be displayed. Type the password and press <ENTER>, the 10/100M2 will respond with the **Management Options** screen.

PI SA

```
Omnitron Systems Technology, Inc.                iConverter, Serial Agent
Copyright 2001-2007 OST, Inc.                      Password Entry

-----
Omnitron Systems Technology      Technical Support:    (949) 250-6510
140 Technology #500             Sales/Products:     (800) 675-8410
Irvine, CA 92618                On the web at:      www.omnitron-systems.com
-----

IP Address   192.168.1.220
MAC          00:00:00:00:00:00

[xxxxxxx]
Please enter the password >
```

### 3.4.1 Setting IP and Control Preferences

An IP address is required for the SNMP manager to address the 10/100M2. The factory default setting is 192.168.1.220. The IP address can be configured manually or automatically as a DHCP client.

#### 3.4.1.1 Setting IP Parameters Manually

To manually configure the IP address and control parameters, select 3 from the *Management Options* screen. The *IP and Control Preferences* screen will appear.

PI SA

IP and Control Preferences Screen

iConverter, Serial Agent

1: Set IP	192.168.1.220
2: Set Subnet Mask	255.255.255.0
3: Set Gateway	192.168.1.1
4: Chassis Number	1
5: Chassis Name (also sysName)	10/100M2
6: Enable/Disable TELNET	Enabled
7: Enable/Disable FTP	Disabled
8: Enable/Disable Soft Switch Reload	Disabled
9: TELNET Password	*****
10: FTP Password	
11: Serial Password	

Enter Choice, Management Options Screen(0), (H)elp, E(x)it >

To configure the IP address of the 10/100M2, select 1 at the *IP and Control Preferences* screen, and press <ENTER>. Backspace over the existing value, type the new value (in x.x.x.x format), and press <ENTER>.

To configure the subnet mask of the 10/100M2, select 2 at the *IP and Control Preferences* screen, and press <ENTER>. Backspace over the existing value, type the new value (in x.x.x.x format), and press <ENTER>.

To configure the gateway of the 10/100M2, select 3 at the *IP and Control Preferences* screen, and press <ENTER>. Backspace over the existing value, type the new value (in x.x.x.x format), and press <ENTER>.

To save the new values, select 0 and press <ENTER> to return to the *Management Options* screen, then select 6 and press <ENTER> to *Save Preference Changes*.

#### 3.4.1.2 Setting IP Parameters as DHCP Client

To configure the IP automatically as a DHCP client, select 9 from the *Management Options* screen. The *Other Networking Features* screen will appear.

```

Management Options                                iConverter, Serial Agent

Network Management
1: Chassis and Module Management
2: Set Module Identifier

Management Module Preferences
3: IP and Control Preferences
4: SNMP Preferences
5: Abandon Preference Changes
6: Save Preference Changes
7: Restore to Factory Defaults
8: Restart Management Module
9: Other Networking Features

Management Module Maintenance
10: Firmware Update
11: Set Date/Time

IP Address      = 192.168.1.220
Chassis Number = 1

Enter Choice, (H)elp, E(x)it > 9

```

```

Other Networking Features Screen                iConverter, Serial Agent

1: Enable/Disable DHCP Client                  Disabled
2: Enable/Disable Keep Alive Trap              Disabled
3: Keep Alive Trap interval (10-600 secs)      10
4: Enable/Disable SW1 Switch Block             Enabled
5: Serial Baud Rate                           57600 bps

Enter Choice, Management Options Screen(0), (H)elp, E(x)it >

```

To enable DHCP client, select *1* at the ***Other Networking Features*** screen and follow the screen prompts to enable DHCP.

To save the new values, select *0* and press <ENTER> to return to the ***Management Options*** screen, then select *6* and press <ENTER> to ***Save Preference Changes***.

### 3.4.1.3 Setting the Chassis Number and Name

A Chassis Name, or sysName, can be assigned for identification of the 10/100M2 in the SNMP client. The name can be any 1-32 character alphanumeric string.

The Chassis Number can remain as 1 (factory default) when the 10/100M2 is installed without a ***iConverter*** NMM in the same chassis. When the 10/100M2 is installed in the same chassis as an NMM, then the 10/100M2 must be set to the Chassis Number of the NMM.

To set the Chassis Number, select *4* at the ***IP and Control Preferences*** screen, press <ENTER> and follow the instructions to enter the chassis number.

To set the Chassis Name, select *5* at the ***IP and Control Preferences*** screen, press <ENTER> and follow the instructions to enter the chassis name.

**NOTE:** When the NMM is installed into the chassis and is set to Remote OAM, the chassis number of the 10/100M2 is automatically assigned by the NMM.

IP and Control Preferences Screen		iConverter, Serial Agent
1:	Set IP	192.168.1.220
2:	Set Subnet Mask	255.255.255.0
3:	Set Gateway	192.168.1.1
4:	Chassis Number	1
5:	Chassis Name (also sysName)	10/100M2
6:	Enable/Disable TELNET	Enabled
7:	Enable/Disable FTP	Disabled
8:	Enable/Disable Soft Switch Reload	Disabled
9:	TELNET Password	*****
10:	FTP Password	
11:	Serial Password	
Enter Choice, Management Options Screen(0), (H)elp, E(x)it >		

To save the new values, select *0* and press <ENTER> to return to the **Management Options** screen, then select *6* and press <ENTER> to **Save Preference Changes**.

#### 3.4.1.4 Setting 10/100M2 Passwords

The 10/100M2 is shipped from the factory without password protection on the Serial Console Port. It is highly recommended that the network administrator set a password in order to prevent unauthorized access to the unit. The password can be any 1-32 character alphanumeric string.

The 10/100M2 is shipped from the factory with Telnet enabled and FTP disabled. From the **IP and Control Preferences** screen, select *6* to enable or disable Telnet, and select *7* to enable or disable FTP.

To set the password for Telnet access, select *9* at the **IP and Control Preferences** screen, press <ENTER> and then follow the screen prompts to enter and verify the password. The default password for Telnet access is “public”.

To set the password for FTP access, select *10* at the **IP and Control Preferences** screen, press <ENTER> and then follow the screen prompts to enter and verify the password.

To set the password for serial access, select *11* at the **IP and Control Preferences** screen, press <ENTER> and then follow the screen prompts to enter and verify the password.

```

IP and Control Preferences Screen                                iConverter, Serial Agent

1: Set IP                                     192.168.1.220
2: Set Subnet Mask                           255.255.255.0
3: Set Gateway                               192.168.1.1
4: Chassis Number                            1
5: Chassis Name (also sysName)               10/100M2
6: Enable/Disable TELNET                     Enabled
7: Enable/Disable FTP                        Disabled
8: Enable/Disable Soft Switch Reload         Disabled
9: TELNET Password                           *****
10: FTP Password
11: Serial Password

Enter Choice, Management Options Screen(0), (H)elp, E(x)it >

```

To save the new values, select *0* and press <ENTER> to return to the *Management Options* screen, then select *6* and press <ENTER> to *Save Preference Changes*.

### 3.4.2 Setting SNMP Preferences

To set the SNMP Preferences for the 10/100M2 module, select *4* from the *Management Options* screen, press <ENTER> to enter the *SNMP Preferences* screen.

```

Management Options                                            iConverter, Serial Agent

Network Management
1: Chassis and Module Management
2: Set Module Identifier

Management Module Preferences
3: IP and Control Preferences
4: SNMP Preferences
5: Abandon Preference Changes
6: Save Preference Changes
7: Restore to Factory Defaults
8: Restart Management Module
9: Other Networking Features

Management Module Maintenance
10: Firmware Update
11: Set Date/Time

IP Address      = 192.168.1.220
Chassis Number = 1

Enter Choice, (H)elp, E(x)it > 4

```



SNMP Preferences Screen		iConverter, Serial Agent	
Chassis Number	= 1	SNMP Engine ID	80001CAE03000687003B19
1: sysContact	Omnitron (949) 250-6510		
2: sysLocation	Irvine, CA USA		
3: SNMP Writes	Enabled		
SNMP v1/v2c -----			
4: Read Community	*****		
5: Write Community	*****		
6: Agent	Enabled		
SNMP V3 -----			
7: Agent	Enabled		
8: User 1 name (read only)	guest		
9: User 2 name (read/write)	admin		
10: User 1 Security	noAuthNoPriv	13: User 2 Security	noAuthNoPriv
11: User 1 Privacy pwd	*****	14: User 2 Privacy pwd	*****
12: User 1 Authen. pwd	*****	15: User 2 Authen. pwd	*****
Traps Hosts -----			
16: Address 1	255.255.255.255	20: Address 5	255.255.255.255
17: Address 2	255.255.255.255	21: Address 6	255.255.255.255
18: Address 3	255.255.255.255	22: Address 7	255.255.255.255
19: Address 4	255.255.255.255	23: Address 8	255.255.255.255
Enter Choice, Management Options Screen(0), (H)elp, E(x)it >			

### 3.4.2.1 Setting SNMPv1/v2c Read and Write Community Names

The 10/100M2 is shipped from the factory with the SNMP agent enabled with the default SNMP Read and Write Community name as “public”. See Section 3.4 for all factory default settings.

The SNMP Read Community Name is necessary for reading data from the 10/100M2. The name can be any 1-32 character alphanumeric string. To set the SNMP Read Community Name, select 4 at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts.

The SNMP Write Community Name is necessary for writing data to the 10/100M2. The name can be any 1-32 character alphanumeric string. To set the SNMP Write Community Name, select 5 at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts.

To save the new values, select 0 and press <ENTER> to return to the **Management Options** screen, then select 6 and press <ENTER> to **Save Preference Changes**.

### 3.4.2.2 Setting SNMPv3 Parameters

SNMPv3 implements a security model that provides for message integrity, authentication, and encryption. Authentication for SNMPv3 is provided through a unique User Name and Authentication Password for each access level.

Two access levels or accounts are available; Read-Only Level (User 1) and Read and Write Level (User 2). User 1 is allowed to request information from the module. User 2 is allowed to request information from and set configuration to the module. To set the User 1 name, select 8 at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts. To set the User 2 name, select 9 at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts. The 10/100M2 is shipped with default values pre-assigned. See Section 3.4 for all factory default settings.

The module supports the three levels of Authentication and Encryption (Security Levels) for User 1 and User 2; noAuthNoPriv, authNoPriv and authPriv. noAuthNoPriv uses username for authentication,

authNoPriv provides authentication based on the HMAC-MD5 algorithm and authPriv provides DES 56-bit encryption based on the HMAC-MD5 algorithm.

To set User 1 security, select *10* at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts. To set the User 2 security, select *13* at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts.

To set User 1 privacy password, select *11* at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts. To set the User 2 privacy password, select *14* at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts.

To set User 1 authentication password, select *12* at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts. To set the User 2 authentication password, select *15* at the **SNMP Preferences** screen, press <ENTER> and then follow the screen prompts.

To save the new values, select *0* and press <ENTER> to return to the **Management Options** screen, then select *6* and press <ENTER> to **Save Preference Changes**.

Community name and User name can be any 1-32 character alphanumeric string

Authentication Password and Privacy Password can be any 1-16 character alphanumeric string.

#### **3.4.2.3 Setting the SNMP Trap IP Host Addresses**

SNMP traps are used to report events that occur during the operation of a network, and may require the attention of the network administrator. The 10/100M2 is capable of sending SNMP traps to up to eight different SNMP Traphosts.

To enter the IP address of the first Traphost Address, select *4* at the **Management Options** screen to access the **SNMP Preferences** screen. Select *16* at the **SNMP Preferences** screen and press <ENTER>. Then backspace over the existing value, type the new value (in x.x.x.x format), and press <ENTER>. To enter the IP addresses of additional trap-receiving Traphost Addresses, repeat this process for Traphost Addresses 2-8 (menu options 17-23).

To save the new values, select *0* and press <ENTER> to return to the **Management Options** screen, then select *6* and press <ENTER> to **Save Preference Changes**.

#### **3.4.2.4 Enabling/Disabling SNMPv1/v2c Agent**

To disable/enable SNMPv1/v2c agent, select *4* at the **Management Options** screen to access the **SNMP Preferences** screen. Select option *6* to disable/enable SNMPv1/v2c agent. When disabled, the module will not respond to any requests via the SNMPv1/v2c protocol.

#### **3.4.2.5 Enabling/Disabling SNMPv3 Agent**

To disable/enable SNMPv3 agent, select *4* at the **Management Options** screen to access the **SNMP Preferences** screen. Select option *7* to disable/enable SNMPv3 agent. When disabled, the module will not respond to any requests via the SNMPv3 protocol.

**Note: Both SNMPv1/v2c and SNMPv3 agents can be enabled at the same time.**

### 3.4.3 Enabling/Disabling Soft-switch Reload

The Soft-switch Reload function controls the configurations of the 10/100M2 and other *iConverter* modules managed by the 10/100M2 following a power up.

When the Soft-switch Reload is disabled, the configurations of the 10/100M2 and the other managed modules (non-management modules) are determined by their hardware DIP-switch settings following a return of power.

When the Soft-switch Reload is enabled, the configurations of the 10/100M2 and the other managed modules are determined by the previous software settings stored in the FLASH memory of the 10/100M2 following a return of power. Each of the hardware DIP-switch settings on the module are ignored until a change is made to the DIP-switch, then the hardware settings will take effect.

To set the Soft-switch Reload function, select 8 at the *IP and Control Preferences* screen, press <ENTER> and then follow the screen prompts to change the setting.

PI SA

IP and Control Preferences Screen

iConverter, Serial Agent

1: Set IP

192.168.1.220

2: Set Subnet Mask

255.255.255.0

3: Set Gateway

192.168.1.1

4: Chassis Number

1

5: Chassis Name (also sysName)

10/100M2

6: Enable/Disable TELNET

Enabled

7: Enable/Disable FTP

Disabled

8: Enable/Disable Soft Switch Reload

Disabled

9: TELNET Password

\*\*\*\*\*

10: FTP Password

11: Serial Password

Enter Choice, Management Options Screen(0), (H)elp, E(x)it >

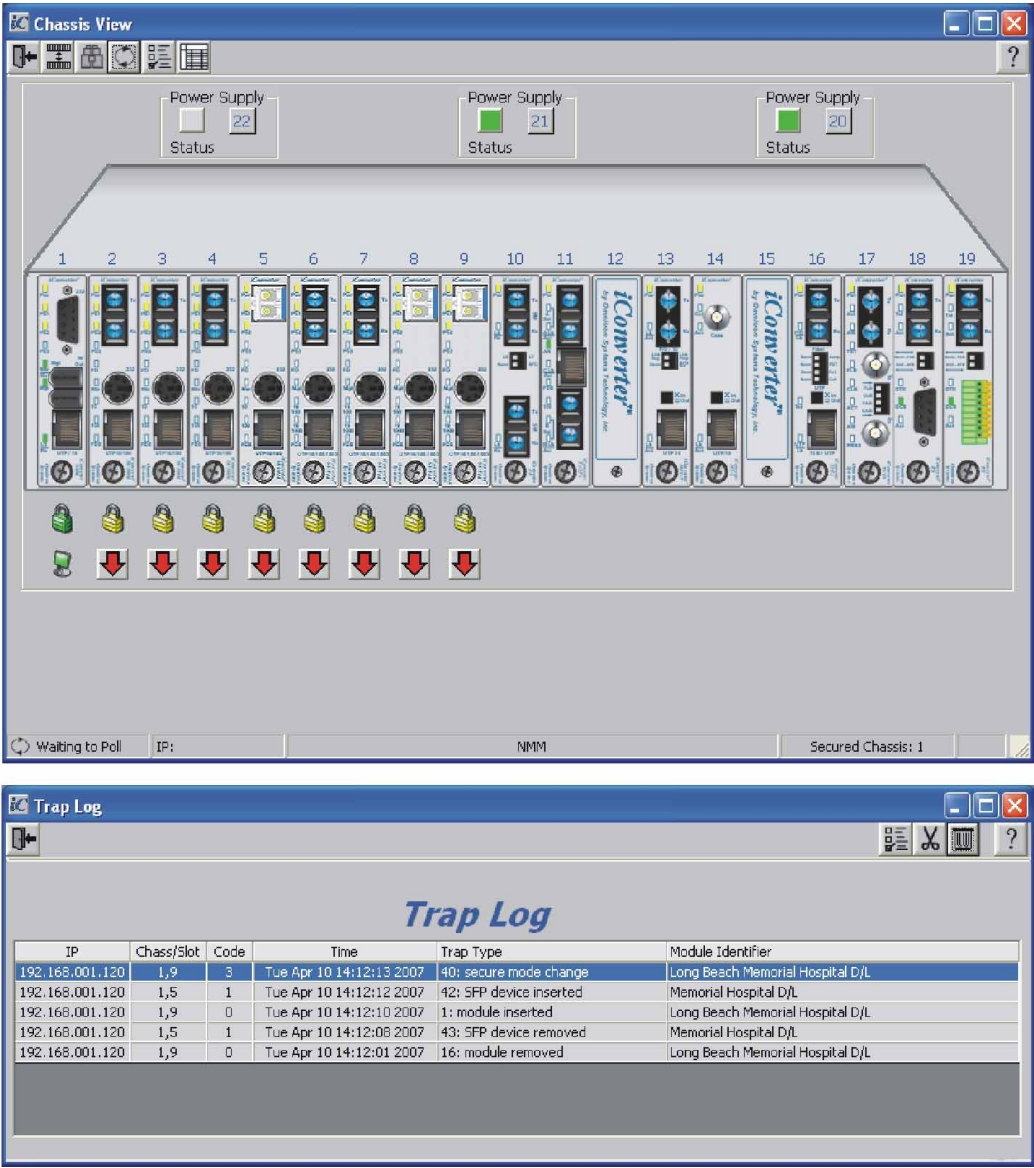
To save the new values, select 0 and press <ENTER> to return to the *Management Options* screen, then select 6 and press <ENTER> to *Save Preference Changes*.

3.4.4 Access the 10/100M2 Remotely

Remote access to the 10/100M2 is provided via SNMP, Telnet, FTP or an external serial modem connected to the Serial Console Port.

3.4.4.1 Accessing the 10/100M2 via NetOutlook (SNMP)

The 10/100M2 module can be remotely accessed by SNMP-client software such as *NetOutlook* or third-party SNMP management software. See Setting SNMP Preferences Section 3.4.2, on how to configure the required parameters.



NetOutlook Chassis View and Trap Log Screens

3.4.4.2 Accessing the 10/100M2 via Telnet

The 10/100M2 is shipped from the factory with Telnet enabled. The default Telnet password is “public”. It is highly recommended that the network administrator set a new Telnet password in order to prevent unauthorized access to the unit. Telnet configuration parameters are available from the *IP and Control Preferences* screen, option 6.

```

IP and Control Preferences Screen                                iConverter, Serial Agent

1: Set IP                                192.168.1.220
2: Set Subnet Mask                       255.255.255.0
3: Set Gateway                           192.168.1.1
4: Chassis Number                        1
5: Chassis Name (also sysName)           10/100M2
6: Enable/Disable TELNET                 Enabled
7: Enable/Disable FTP                    Disabled
8: Enable/Disable Soft Switch Reload     Disabled
9: TELNET Password                       *****
10: FTP Password
11: Serial Password

Enter Choice, Management Options Screen(0), (H)elp, E(x)it >6
Disable TELNET (Y/N)?>

```

To save the new values, select *0* and press <ENTER> to return to the *Management Options* screen, then select *6* and press <ENTER> to *Save Preference Changes*.

The 10/100M2 may be accessed and configured via Telnet using any standard Telnet client. Only one Telnet session can be active at a time. An inactive Telnet session terminates automatically after 5 minutes.

### 3.4.4.3 Updating the 10/100M2 Firmware via the Serial Console Port

To update the 10/100M2 firmware from the Serial Console Port, select *10* at the *Management Options* screen, press <ENTER>. The 10/100M2 will display the following:

```

Management Options                                            iConverter, Serial Agent

Network Management
1: Chassis and Module Management
2: Set Module Identifier

Management Module Preferences
3: IP and Control Preferences
4: SNMP Preferences
5: Abandon Preference Changes
6: Save Preference Changes
7: Restore to Factory Defaults
8: Restart Management Module
9: Other Networking Features

Management Module Maintenance
10: Firmware Update
11: Set Date/Time

IP Address      = 192.168.1.220
Chassis Number = 1

Enter Choice, (H)elp, E(x)it > 10
UPDATE: Are you sure? (Y/N) > Y
Please Xmodem file now:

```

From the terminal program, use the Xmodem protocol to send the new 10100M2-xxx.bin firmware file to the 10/100M2 module (where xxx represents the release level of the software).

Once the file transfer begins, the data uploads to the 10/100M2. The process takes about five minutes over a serial connection.

When the upload is complete, the 10/100M2 displays the update status and then automatically restarts with the newly loaded firmware.

#### 3.4.4.4 Updating the 10/100M2 Firmware via FTP

Using an FTP application, upload the new firmware into the FTP root directory of the 10/100M2. When the file transfer is complete, the 10/100M2 verifies the file and then automatically restarts with the newly loaded firmware.

For detailed instruction on updating the management modules and other modules in the same chassis via FTP, download the application note “*iConverter* Management: Updating Modules via FTP” available on Omnitron’s web page:

<http://www.omnitron-systems.com/downloads.php>

See Setting 10/100M2 Passwords Section 3.4.1.4, on how to configure FTP.

### 3.5 VERIFY OPERATION PI SA

Once the module has been installed and configured, per Sections 3.2 - 3.4, verify the module is operational by viewing the status of the LED indicators. The table below provides a description for each LED indicator.

The Power LED indicates the module is receiving power from the chassis or power cord. The plug-in modules has an LED indicator for each available power supply in the chassis (the 19-Module Chassis has three, the 5-Module Chassis has two).

The Fiber Optic “FO” LED indicates the fiber optic connection has been established. A blinking LED indicates the presence of data.

The UTP “10/100” LED indicates the module has established a connection across its UTP port. A blinking LED indicates the presence of data.

Refer to Section 6.0, Troubleshooting Guide, for help in determining possible fault conditions.

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LED Function "Legend"	Color	Off State	On / Blinking State	On / Blinking State
Power "Pwr"	Green	No power	On: Module has power	On: Module has power
Power Supply Status #X	Green	Chassis Power Supply not installed	On: Power available from installed Power Supply #X Blinking: No power available from installed Power Supply #X	Not available on standalone
100Mbps Fiber Optics "FO"	Green	No Fiber Link	On: Fiber link is active Blinking: Fiber Data Activity	On: Fiber link is active Blinking: Fiber Data Activity
Chassis Management Master/Slave "BP"	Green	Chassis Slave Mode	On: Chassis Master Mode Blinking: Operating in OAM Mode	Not available on standalone
UTP port 10Mbps "10"	Green	10Mbps not active	On: 10Mbps UTP link is active Blinking: UTP Data Activity	On: 10Mbps UTP link is active Blinking: UTP Data Activity
UTP port 100Mbps "100"	Green	100Mbps not active	On: 100Mbps UTP link is active Blinking: UTP Data Activity	On: 100Mbps UTP link is active Blinking: UTP Data Activity
UTP port Full-Duplex "FDX"	Green	Half-Duplex when any UTP link is active	Full-Duplex when any UTP link is active	Full-Duplex when any UTP link is active

## 4.0 DETAILED MODULE CONFIGURATION PI SA

### 4.1 OVERVIEW

The 10/100M2 has module parameters that require configuration depending on the application. The *Module* configuration screen is accessible by selecting the module slot number from the *Chassis View* screen. To access the *Module* configuration menu, select *1* at the *Management Options* screen, press <ENTER>. The *Chassis Selection* screen will be displayed. From the *Chassis Selection* screen, select the chassis number where the 10/100M2 module is installed.

**NOTE:** Module configuration is also available using *NetOutlook*.

PI

```
Chassis Selection                                iConverter, Serial Agent

Number      Chassis Name
1           NMM
2           Not Available
3           Not Available
4           Not Available
5           Not Available
6           Not Available
7           Not Available
8           Not Available
9           Not Available
10          Not Available
11          Not Available
12          Not Available
13          Not Available
14          Not Available
15          Not Available
16          Not Available
17          Not Available
18          Not Available
19          Not Available
Connected to Chassis Number 1

Chassis Number(1-19), Management Options(0), (H)elp, E(x)it > 1
```



By selecting Chassis Number 1, from the *Chassis Selection* screen, the *Chassis View* screen will be displayed.

PI

Chassis View 19 Slot			iConverter, Serial Agent		
Chassis Number = 1					
Slot	Model	Type	Slot	Model	Type
1	8000-0	NMM	16	N/A	
2	8903-1	10/100M	17	N/A	
3	8911-1	10/100M	18	N/A	
4	N/A		19	N/A	
5	8919N-0	10/100M2	20	N/A	
6	N/A		21	8200-9	Power Supply
7	N/A		22	N/A	
8	N/A				
9	N/A				
10	N/A				
11	N/A				
12	N/A				
13	N/A				
14	N/A				
15	N/A				
Module to View(1-22), Chassis Selection(0), (R)eset, (H)elp, E(x)it > 5					

SA

Chassis View 1 Slot			iConverter, Serial Agent
Chassis Number = 1			
Slot	Model	Type	Module Identifier
1	8919N-0	10/100M2	
Module to View(1), Management Options(0), (R)eset, (H)elp, E(x)it >1			

From the *Chassis View* menu, select the desired module (select 1 or 5), press <ENTER>. The *Module* configuration screen will be displayed.



```

Module - iConverter 10/100M2                               iConverter, Serial Agent
Identifier -

Chassis Number      = 1          Switch ON Condition    OFF Condition    H/W    Actual
Slot Number         = 1          1: Pause Enabled  Pause Disabled  Off    Off
Model Number        = 8919N-0    2: Fiber HDX     Fiber FDX       Off    Off
                                   3: UTP Manual    UTP Auto-Neg   Off    Off
Serial Number       = xxxxxxxx   4: UTP 10 Mbps   UTP 100 Mbps   Off    Off
Manufacturing Date  = xxxxxxxx   5: UTP HDX       UTP FDX        Off    Off
Product Revision    = x          6: Link Propagate Link Segment     Off    Off
Software Revision   = xx         7: Remote Fault  Normal         Off    Off
                                   8: Symm Fault Det Normal         Off    Off
LED                                                         9: BP A Enabled  BP A Disabled  On     On
1: Power            = On         10: BP B Enabled BP B Disabled  On     On
2: Power Supply 1   = Off        11: Not Available
3: Power Supply 2   = Off        12: Slave Only   Master/Slave    Off    Off
4: Power Supply 3   = Off        13: Not Available
5: Fiber Link       = Off        14: Not Available
6: BP Master        = On         15: Not Available
7: UTP 10 Link      = Off        16: Not Available
8: UTP 100 Link     = Off        OAM settings:
9: UTP FDX          = Off        17: IP Protocol State On
                                   18: Management Mode Secure OAM

Toggle Switch(1-16), (I)dentifier, (R)eset, (H)elp, (P)ortStat, Port(C)tl >

```

The **Module** configuration screen provides general information concerning the configuration and status of the module. The screen displays the model and serial numbers, hardware and software revisions, as well as the condition of the LEDs and DIP-switches. The DIP-switches can be re-configured (options 1 -10,12) without removing the module from the chassis. Select the appropriate option to change the DIP-switch setting. Selecting DIP-switch options 1 - 10 and 12, will cause the selection to change states under the 'Actual' heading.

**NOTE: The Plug-In Module configuration screen is shown. The standalone Module configuration screen will display LED 2, 3, 4, and 6 and DIP-switches 9, 10 and 12 as NOT AVAILABLE.**

## 4.2 MODULE MANAGEMENT MODE

From the **Module** configuration screen, the management mode can be changed. Select option *18* to change the mode. The management mode options will be displayed.

PI

```
Module - iConverter 10/100M2                      iConverter, Serial Agent
Identifier -

Chassis Number      = 1          Switch ON Condition  OFF Condition  H/W    Actual
Slot Number         = 1          1: Pause Enabled  Pause Disabled Off     Off
Model Number        = 8919N-0    2: Fiber HDX     Fiber FDX     Off     Off
Serial Number       = xxxxxxxx   3: UTP Manual    UTP Auto-Neg  Off     Off
Manufacturing Date  = xxxxxxxx   4: UTP 10 Mbps   UTP 100 Mbps  Off     Off
Product Revision    = x         5: UTP HDX       UTP FDX       Off     Off
Software Revision   = xx        6: Link Propagate Link Segment   Off     Off
LED                7: Remote Fault Normal         Off     Off
1: Power            = On         8: Symm Fault Det Normal         Off     Off
2: Power Supply 1   = Off        9: BP A Enabled  BP A Disabled On      On
3: Power Supply 2   = Off        10: BP B Enabled BP B Disabled On      On
4: Power Supply 3   = Off        11: Not Available
5: Fiber Link       = Off        12: Slave Only   Master/Slave   Off     Off
6: BP Master        = On         13: Not Available
7: UTP 10 Link      = Off        14: Not Available
8: UTP 100 Link     = Off        15: Not Available
9: UTP FDX          = Off        16: Not Available

                                OAM settings:
                                17: IP Protocol State On
                                18: Management Mode   Secure OAM

Toggle Switch(1-16), (I)dentifier, (R)eset, (H)elp, (P)ortStat, Port(C)tl >
Mode (1=OAM Off, 2=Auto Secure OAM, 3=Auto ah OAM, 4=Secure OAM, 5=ah OAM): 3
```

The 10/100M2 module supports several management options. Option *18* configures how the module will communicate to its remote partner. ‘Auto Secure OAM’ (option 2) and ‘Secure OAM’ (option 4) uses Omnitron’s proprietary secure encrypted management channel. ‘Auto Secure OAM’ will force the remote partner to communicate using the Secure OAM protocol while ‘Secure OAM’ will only attempt to communicate with the remote partner over the secure protocol. The management channel can support IP or IP-less connectivity based on the configuration of the ‘IP Protocol State’, option *17*. ‘Auto ah OAM’ (option 3) and ‘ah OAM’ (option 5) conforms to the IEEE 802.3ah specification. ‘Auto ah OAM’ will force the remote partner to communicate using the ah OAM protocol while ‘ah OAM’ will only attempt to communicate with the remote partner over the ah protocol. This option provides an industry standard method of fault detection and monitoring. The management channel supports both IP and IP-less connectivity based on the configuration, option *17* and *18*.

**NOTE:** See *NetOutlook User Manual* for complete information on the management modes.

### 4.3 PORT CONFIGURATION

The **Port** configuration screen provides access to the port level configuration parameters, such as, Port Access, Bandwidth Control, L2CP Control, SFP information, 802.3ah, Port VLANs, Tagged VLANs and cNode Loopback. To access the **Port** configuration screen, select **C** from the **Module** configuration screen and press <ENTER>. The **Port** configuration screen will appear.

PI

```
Module - iConverter 10/100M2                      iConverter, Serial Agent
Identifier -

Chassis Number      = 1                      Port Access Control Setup
Slot Number         = 1                      -----
Model Number        = 8919N-0              11: Fiber  Enable    On
                                           12: UTP   Enable    On

Feature Selection
-----
1: 802.1Q Processing Enable  Off
2: Configure Tag VLAN Control
3: Configure VLAN Membership
4: Save TAG VLAN parameters
5: Configure 802.3ah parameters
6: Configure 802.3ah events
7: SFP Information
8: Bandwidth Control
9: L2CP Control
10: cNode Loopback

Port VLAN Path Setup
-----
13: Fiber  to UTP      Enable  On
14: Fiber  to BP A     Enable  On
15: Fiber  to BP B     Enable  On
16: UTP    to BP A     Enable  On
17: UTP    to BP B     Enable  On
18: BP A   to BP B     Enable  On
18: Fiber  to Mngmnt   Enable  On
20: UTP    to Mngmnt   Enable  On
21: BP A   to Mngmnt   Enable  On
22: BP B   to Mngmnt   Enable  On

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

SA

```
Module - iConverter 10/100M2                      iConverter, Serial Agent
Identifier -

Chassis Number      = 1                      Port Access Control Setup
Slot Number         = 1                      -----
Model Number        = 8919N-0              11: Fiber  Enable    On
                                           12: UTP   Enable    On

Feature Selection
-----
1: 802.1Q Processing Enable  Off
2: Configure Tag VLAN Control
3: Configure VLAN Membership
4: Save TAG VLAN parameters
5: Configure 802.3ah parameters
6: Configure 802.3ah events
7: SFP Information
8: Bandwidth Control
9: L2CP Control
10: cNode Loopback

Port VLAN Path Setup
-----
13: Fiber  to UTP      Enable  On
14: Fiber  to BP A     Enable  On
15: Fiber  to BP B     Enable  On

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

### 4.3.1 Port Access

The Port Access option allows the ports to be disabled/enabled while maintaining the port configuration and network link

To configure Port Access, select option *11* for the Fiber port and option *12* for the UTP port from the **Port** configuration screen.

### 4.3.2 Bandwidth Control

The 10/100M2 Bandwidth Control is accessed by selecting option *8* at the **Port** configuration screen.

The 10/100M2 provides separate ingress and egress rate control on each port.

Ingress rates are limited by Committed Information Rate (CIR) and Committed Burst Size (CBS). The committed information rate (CIR) is the rate at which the network supports data transfer under normal operations. The committed burst size (CBS) defines the number of bits that can transmit over a specified time interval when congestion is occurring. Ingress CIR values are entered as a number of kbps, ranging from 64kbps to 100,000kbps. CIR values will be rounded to the nearest 64k. CBS values can range from 5kB to 150kB.

Ingress rate limiting provides an excess traffic policy with the option to “drop” the excess frames or “accept, send PAUSE” to the port’s link partner when traffic excess the ingress CIR and CBS values.

Egress rate are selected from a menu of 20 options.

Egress rate limiting can be selected to use either Starvation Queuing (low latency) or Weighted Fair Queuing (high latency). Starvation Queuing processes all high priority traffic before any low priority traffic and uses a strict priority scheme. Weighted Fair Queuing will process high priority traffic more often then low priority traffic in an 8 (high priority), 4, 2, 1 (low priority) weighted scheme.

PI SA

```
Bandwidth Control - iConverter 10/100M2          iConverter Serial Agent
Identifier -

Chassis Number      = 1
Slot Number         = 1
Model Number        = 8919N-0

      Fiber  Controls
-----
1: Ingress CIR           100,000 kbps
2: Ingress CBS           150 kB
3: Excess Traffic Policy Drop
4: Egress rate           100 Mbps
5: Queueing              Fair Weight

      UTP    Controls
-----
6: Ingress CIR           100,000 kbps
7: Ingress CBS           150 kB
8: Excess Traffic Policy Drop
9: Egress rate           100 Mbps
10: Queueing              Fair Weight

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

To change the ingress rate of the fiber port, select option *1*.

```
Change Fiber CIR (range 64 to 100000)> 100000
```

To change the ingress rate of the UTP port, select option 6.

```
Change UTP CIR (range 64 to 100000)> 100000
```

To change the egress rate, select option 4 for the fiber port or option 9 for the UTP port. The egress rates are displayed. Select the desired egress rate.

PI SA

```
Bandwidth Control - iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number   = 1
Slot Number      = 1
Model Number     = 8919N-0

-----
Fiber Controls
-----
1: Ingress CIR           100000 kbps
2: Ingress CBS           150 kB
3: Excess Traffic Policy Drop
4: Egress rate           100 Mbps
5: Queueing              Fair Weight

UTP Controls
-----
6: Ingress CIR           100000 kbps
7: Ingress CBS           150 kB
8: Excess Traffic Policy Drop
9: Egress rate           100 Mbps
10: Queueing             Fair Weight

-----
1: 64 Kbps      11: 6 Mbps
2: 128 Kbps     12: 7 Mbps
3: 256 Kbps     13: 8 Mbps
4: 512 Kbps     14: 9 Mbps
5: 768 Kbps     15: 10 Mbps
6: 1 Mbps       16: 20 Mbps
7: 2 Mbps       17: 30 Mbps
8: 3 Mbps       18: 40 Mbps
9: 4 Mbps       19: 50 Mbps
10: 5 Mbps      20: 100 Mbps

Select Fiber Egress Rate from menu above (1-20) >
```

### 4.3.3 Layer 2 Control Protocol Filter

Layer 2 Control Protocol Filter provides the ability to discard, forward or tunnel L2CP frames based on the network requirements. Select ‘discard’, ‘forward’ or ‘tunnel’.

The Layer 2 Control Protocol Filter is accessed by selecting option 9 from the **Port** configuration screen.

PI SA

```
L2CP Control - iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

1: Global L2CP Control      Forward

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

Select the appropriate option to configure the module for the desired operation.

#### 4.3.4 SFP Information

The 10/100M2 module installed with an SFP will provide general and specific information on the SFP. This information is best viewed with SNMP management software. The following is the information available:

##### 4.3.4.1 SFP A0 Information Display

This section displays fixed SFP Module information for the following areas.

- Identifier Values
- Connector Values
- Encoding Rules
- Link Length
- Vendor OUI
- Laser Wavelength
- Vendor Serial Number
- Diagnostic Monitoring Type
- SFF-8472 Compliance
- Extended Identifier
- Transceiver Codes
- Normal Bit Rate
- Vendor Name
- Vendor Revision Number
- Options
- Date Code
- Enhanced Options

##### 4.3.4.2 SFP A2 Information Display

This section displays decoded SFP data collected for the following statistics.

- Measured Temperature
- Measured Bias
- Measured Rx Power
- Temperature Low Alarm Setting
- Temperature Low Warning Setting
- Vcc Low Alarm Setting
- Vcc Low Warning Setting
- Bias Low Alarm Setting
- Bias Low Warning Setting
- Tx Power Low Alarm Setting
- Tx Power Low Warning Setting
- Rx Power Low Alarm Setting
- Rx Power Low Warning Setting
- Measured Vcc
- Measured Tx Power
- Temperature High Alarm Setting
- Temperature High Warning Setting
- Vcc High Alarm Setting
- Vcc High Warning Setting
- Bias High Alarm Setting
- Bias High Warning Setting
- Tx Power High Alarm Setting
- Tx Power High Warning Setting
- Rx Power High Alarm Setting
- Rx Power High Warning Setting

SFP information can be obtained by selecting option 7 from the *Port* configuration screen.

PI SA

```
SFP Information - iConverter 10/100M2          iConverter, Serial Agent
Identifier -
Chassis Number = 1    Slot Number = 1    Model Number = 8919N-0    Port = 1

Address A0 Page Contents
=====
00: 03 04 07 00 10 02 00 00 00 00 00 01 03 00 14 C8 .....
10: 37 37 00 00 43 4F 52 45 54 45 4B 20 20 20 20 77..xxxxxxx
20: 20 20 20 20 00 00 00 00 43 54 2D 30 31 35 35 53 ....xxxxxxx
30: 53 50 2D 4D 42 35 4C 44 30 30 30 05 1E 00 84 xxxxxxxxxxxxxx....
40: 00 1A 00 00 41 31 36 37 45 43 35 30 30 30 30 30 ....A167EC500000
50: 36 20 20 20 30 35 31 32 30 37 20 20 68 90 01 A4 6  051207 h...
60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
80: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
90: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
A0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
B0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
C0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
D0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
E0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
F0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....

Enter Previous Screen(0), (n)ext page, (H)elp, E(x)it > n

SFP Information - iConverter 10/100M2          iConverter, Serial Agent
Identifier -
Chassis Number = 1    Slot Number = 1    Model Number = 8919N-0    Port = 1

Address A2 Page Contents
=====
00: 64 00 F6 00 5A 00 FB 00 8C A0 75 30 88 B8 79 18 d...Z.....u0..y.
10: 9C 40 03 E8 88 B8 07 D0 09 D0 00 FB 07 CB 01 3C .@.....<
20: 18 A6 00 05 13 94 00 06 00 00 00 00 00 00 00 .....
30: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
40: 00 00 00 00 3F 80 00 00 00 00 00 00 00 01 00 00 ....?.....
50: 01 00 00 00 01 00 00 00 01 00 00 00 00 00 00 AE .....
60: 24 A8 80 78 17 14 03 F0 00 00 00 00 00 00 02 F8 $.x.....
70: 00 40 00 00 00 40 00 00 00 00 00 00 00 00 00 00 .@...@.....
80: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
90: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
A0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
B0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
C0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
D0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
E0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....
F0: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF .....

Enter Previous Screen(0), (b) previous page, (H)elp, E(x)it >
```

#### 4.3.5 802.3ah Parameters

The 802.3ah parameters can be monitored and/or configured in the *802.3ah Control* screen.

- 802.3ah OAM State - The 802.3ah OAM State turns 802.3ah processing on or off for the selected port. When the port is configured as “Disabled” it will not respond to OAMPDUs (OAM Protocol Data Units). They will be dropped by the processor and not acted upon. When the port is configured as “Enabled”, it will respond to and be involved in the Discovery process and other supported 802.3ah OAM functions.
- 802.3ah OAM Mode - The 802.3ah OAM Mode sets the selected port to “Passive” or “Active” configuration mode. In “Passive” mode the port cannot initiate Discovery, send Variable Requests or initiate Loopback Mode. It can observe and report only the port status of its 802.3ah enabled remote partner. An “Active” port can initiate Discovery, send Variable Requests and initiate loopback mode.
- Loopback Mode - The Loopback Mode turns loopback operations “On” or “Off”. When Loopback Mode is set to “Off”, the port of the 802.3ah enabled local device will not initiate Loopback operations. It can respond to loopback commands from its 802.3ah enabled remote partner if set to “Passive” or “Active”. When Loopback Mode is set to “On”, the port of the 802.3ah enabled local device will initiate Loopback operations and set the 802.3ah enabled remote partner into loopback. In this mode, the 802.3ah enabled local device will not respond to any other configuration changes until its port is set to “Off.”
- Loopback Mode Timeout (sec) - The Loopback Mode Timeout field controls the length of time that the port will be set to Loopback “On” mode. Loopback can be set between 0 and 300 seconds. The 0 setting disables the timer.
- Unidirectional Mode - OAM provides a mechanism to notify the remote link partner when one direction of a link is non-operational and therefore data transmission is disabled. The ability to operate a link in a unidirectional mode for diagnostic purposes supports the maintenance objective of failure detection and notification. The 802.3ah unidirectional link can be enabled on the fiber port. Unidirectional fiber link allows a fiber port to send link fault OAMPDUs when a link fault is detected.

##### 4.3.5.1 Local Status Section

The Local Status section displays the status of the Fiber and UTP ports of the 802.3ah enabled local device. The local device is controlled directly by SNMP, Telnet or via the Serial Port and has the ability to communicate with an 802.3ah enabled remote partner.

- Discovery State - Indicates the Discovery state (“Complete”, “In Process” or “Incomplete”) of the local ports. If “Complete” is displayed, Discovery has been completed. If “In Process”, Discovery has been initiated but no response from the 802.3ah enabled remote partner has been received by the local device. If “Incomplete”, Discovery has received a response from the 802.3ah enabled remote partner but the Discovery process is not yet completed.
- Multiplexer State - Indicates the Multiplexer state (“Discard” or “Forward”) of the local ports. If “Forward” is displayed, the local device is forwarding non-OAMPDU network frames to the **lower** sublayer. If “Discard”, the local device is discarding non-OAMPDU network frames.
- Parser Action - Indicates the Parser Action (“Discard”, “Forward” or “Loopback”) of the local ports. If “Forward” is displayed, the local device is forwarding non-OAMPDU network frames to the **higher** sublayer. If “Loopback”, the local device is looping back non-OAMPDUs network frames. If “Discard”, the device is discarding non-OAMPDUs network frames.

##### 4.3.5.2 Remote Status Section

The Remote Status section displays the status of the ports of the 802.3ah enabled remote partner. These



remote ports are connected to the Fiber and UTP ports of the local device. The remote partner is managed by the local device via the 802.3ah OAM channel.

- Discovery State - Indicates the Discovery state (“Complete”, “In Process” or “Incomplete”) of the remote ports. If “Complete” is displayed, Discovery has been completed. If “In Process”, Discovery has been initiated but no response from the local device has yet been received by the remote partner. If “Incomplete”, Discovery is in process, but is not yet completed.
- Multiplexer State - Indicates the Multiplexer state (“Discard”, “Forward” or “Unknown”) of the remote ports. If “Forward” is displayed, the remote partner is forwarding non-OAMPDUs to the lower sublayer. If “Discard”, the remote partner is discarding non-OAMPDUs network frames. If “Unknown”, the Multiplexer state of the remote partner is indeterminate.
- Parser Action - Indicates the Parser Action state (“Discard”, “Forward” or “Loopback”) of the remote ports. If “Forward” is displayed, the remote partner is forwarding non-OAMPDUs network frames to the **higher** sublayer. If “Loopback” is displayed, the remote partner is looping back non-OAMPDUs network frames. If “Discard” is displayed, the remote partner is discarding non-OAMPDUs network frames.
- Critical Event - Indicates the Critical Event state (“Yes” or “No”) of the remote partner. If “Yes” is displayed, the local device has detected a Critical Event. If “No”, the local device has not detected a critical event.
- Link Fault - Indicates the remote partner has detected a fault in the receive direction (“Yes” or “No”). If “Yes” is displayed, the receive link is down. If “No”, the receive link is up.
- OAM Mode - Indicates the OAM mode (“Active” or “Passive”) of the remote partner.
- Supports - Indicates the supported options (Variable Access “Var”, Link Event Notification “Events”, Loopback “LB”, Unidirectional “UNI” or blank if no options are supported) of the remote partner.
- OUI - Indicates the three hex byte IEEE organizational specific identifier (or “Unknown” if unknown) of the remote partner.

802.3ah parameters can be accessed by selecting options 5 from the **Port** configuration screen. The fiber (port 1) configuration screen is displayed.

PI SA

802.3ah Control - iConverter 10/100M2
iConverter, Serial Agent
Identifier -
Chassis Number = 1
Slot Number = 1
Model Number = 8919N-0
Port # = 1

1: 802.3ah OAM State	Enabled	Local Status	
2: OAM Mode	Active	Discovery State	In Process
3: Loopback Mode	Disabled	Multiplexer State	Forward
4: Loopback Timeout	30 sec	Parser Action	Forward
5: Unidirectional Mode	Enabled		

Remote Status
Discovery State Incomplete
Critical Event No
Link Fault No
Multiplexer State Unknown
Parser Action Unknown
Mode Unknown
Supports Unknown
OUI: Unknown

Enter, Previous Screen (0), (n)ext page, (H)elp, E(x)it >

To configure the 802.3ah parameters for the UTP port, type an *n* and press <ENTER>.

#### 4.3.6 802.3ah Events

802.3ah events can be accessed by selecting options 6 from the **Port** configuration screen.

PI SA

802.3ah Event - iConverter 10/100M2
iConverter, Serial Agent
Identifier -
Chassis Number = 1
Slot Number = 1
Model Number = 8919N-0

Port 1

1: Symbol Period Window	0 second	<	0	symbols>
2: Symbol Period Threshold	0 symbols			
3: Frame Window	0 seconds			
4: Frame Threshold	0 frames			
5: Frame Period Window	0 second	<	0	frames>
6: Frame Period Threshold	0 frames			
7: Frame Seconds Summary Window	0 seconds			
8: Frame Seconds Summary Threshold	0 seconds			

Port 2

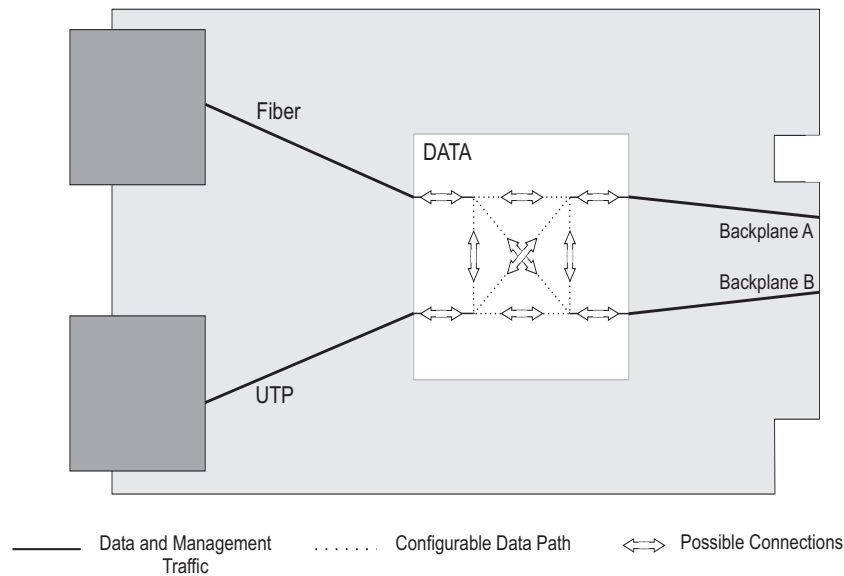
9: Symbol Period Window	0 second	<	0	symbols>
10: Symbol Period Threshold	0 symbols			
11: Frame Window	0 seconds			
12: Frame Threshold	0 frames			
13: Frame Period Window	0 second	<	0	frames>
14: Frame Period Threshold	0 frames			
15: Frame Seconds Summary Window	0 seconds			
16: Frame Seconds Summary Threshold	0 seconds			

Enter Choice, Previous Screen(0), (H)elp, E(x)it >

### 4.3.7 Port VLAN

The flow of data on the module is controlled by configuring the Port VLAN settings. The block diagram illustrates the flow of both the management traffic and the data traffic for a plug-in module (standalone modules do not have backplane access). The data traffic is controlled by a switch matrix which provides complete control of the data traffic. The management traffic is simply enabled or disabled at each port. By default traffic flows between all ports on the module.

Using the Port VLAN settings, data will only be forwarded across the enabled path, unless blocked by one of the other features (Port Access or Tag VLAN). Secure OAM and ah OAM Management data will pass to and from the Management port even if the path has been “disabled”. This allows OAM maintenance functions to always be enabled. Port VLAN control is inactive when Tag VLAN processing is turned on.



***Port VLAN Block Diagram***

Port VLAN is access by selecting options *13 - 22* or *13 - 15* depending on the module type; plug-in or standalone.

PI

Module - iConverter 10/100M2		iConverter, Serial Agent	
Identifier -			
Chassis Number	= 1	Port Access Control Setup	
Slot Number	= 1	-----	
Model Number	= 8919N-0	11: Fiber	Enable On
		12: UTP	Enable On
Feature Selection			
-----			
1: 802.1Q Processing	Enable Off	Port VLAN Path Setup	
		-----	
2: Configure Tag VLAN Control		13: Fiber	to UTP Enable On
3: Configure VLAN Membership		14: Fiber	to BP A Enable On
4: Save TAG VLAN parameters		15: Fiber	to BP B Enable On
5: Configure 802.3ah parameters		16: UTP	to BP A Enable On
6: Configure 802.3ah events		17: UTP	to BP B Enable On
7: SFP Status		18: BP A	to BP B Enable On
8: Bandwidth Control		18: Fiber	to Mngmnt Enable On
9: L2CP Control		20: UTP	to Mngmnt Enable On
10: cNode Loopback		21: BP A	to Mngmnt Enable On
		22: BP B	to Mngmnt Enable On
Enter Choice, Previous Screen(0), (H)elp, E(x)it >			

SA

Module - iConverter 10/100M2		iConverter, Serial Agent	
Identifier -			
Chassis Number	= 1	Port Access Control Setup	
Slot Number	= 1	-----	
Model Number	= 8919N-0	11: Fiber	Enable On
		12: UTP	Enable On
Feature Selection			
-----			
1: 802.1Q Processing	Enable Off	Port VLAN Path Setup	
		-----	
2: Configure Tag VLAN Control		13: Fiber	to UTP Enable On
3: Configure VLAN Membership		14: Fiber	to BP A Enable On
4: Save TAG VLAN parameters		15: Fiber	to BP B Enable On
5: Configure 802.3ah parameters			
6: Configure 802.3ah events			
7: SFP Status			
8: Bandwidth Control			
9: L2CP Control			
10: cNode Loopback			
Enter Choice, Previous Screen(0), (H)elp, E(x)it >			

### 4.3.8 Tagged VLAN

The 10/100M2 supports the IEEE 802.1Q tag VLAN packet tagging and un-tagging (including Q-in-Q multi-tagging) and the 802.1p Quality of Service priority standards.

The following parameters are configured for each port:

#### 4.3.8.1 Port Priority (PRI)

This (IEEE 802.1p based) user-specified value of 0 through 7 can be assigned as a QoS priority level (0 being lowest and 7 being highest) to packets ingressing (entering) a port. If no value is specified by the user, a default priority value of “0” is assigned.

The PRI value is always assigned to all untagged packets. Tagged packets are assigned the PRI value when the “PVID” option is selected in the “Tagged Packet Use” section.

#### 4.3.8.2 Port VLAN ID (PVID)

This (IEEE 802.1Q based) user-specified value of 0 through 4094 can be assigned as a Port VLAN ID (PVID) to packets ingressing a port. If no value is specified by the user a default PVID value of “2” is assigned.

The PVID value is always assigned to untagged packets. Tagged packets are assigned the PVID value when the “PVID” option is selected in the “Tagged Packet Use” section.

#### 4.3.8.3 Tagged Packet Use

This section defines how tagged packets ingressing a port are processed.

Selecting the “PVID” option causes the PRI and PVID user-specified values to be used as the packet’s VLAN ID (VID) for processing of the packet.

Selecting the “TVID” (Tagged VLAN ID) option causes the packet’s original Tag VLAN ID (TVID) and priority level to be used as the packet’s VLAN ID (VID) for processing of the packet.

NOTE: Untagged packets are always assigned the port’s PRI and PVID values as their VID.

#### 4.3.8.4 Ingress Security

This section selects the ingress security level of a port.

Selecting the “**Low**” option allows any packet to ingress a port.

Selecting the “**High**” option allows only packets that are assigned a VLAN ID (VID) value of which this port is a member (according to the Membership Table) to ingress a port.

#### 4.3.8.5 Port Type

This section defines the port type.

Selecting the “**Tunnel**” option, sets the egress mode to “Pass” for each VID assigned to the port in the membership table. The port is set to “Accept Tagged” frames.

Selecting the “**Trunk**” option, the port is set to a Egress Tag Mode of “Provider Tag”. Frames ingressing will have the “Provider Tag” removed.

Selecting the “**Access**” option, sets the egress mode to “Pass” for each VID assigned to the port in the membership table. The port is set to “Discard Tagged” frames.

#### 4.3.8.6 Global Settings

The 10/100M2 allows the setting of the customer facing port (C-TAG) and the network facing port (S-TAG). C-Tag is used by the port when Port Type is set to “Access” or “Tunnel”. The C-Tag defaults to 0x8100h. S-TAG is used by the port when Port Type is set to “Trunk”. The S-Tag defaults to 0x8100h. If the S-Tag is changed the port functions as an IEEE 802.1ad S-Tag port.

Tagged VLAN is accessed by selecting option 2 from the **Port** configuration screen. The **Tag VLAN Control** screen will be displayed.

PI

```

Tag VLAN Control - iConverter 10/100M2          iConverter, Serial Agent
Identifier -
Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

Fiber1: Port Priority (PRI)          0          BP B 16: Port Priority (PRI) 0
      2: PVID (Port VLAN ID)        2          17: PVID (Port VLAN ID)    2
      3: Tagged Packets Use          PVID        18: Tagged Packets Use      PVID
      4: Ingress Security            Low         19: Ingress Security          Low
      5: Port Type                   Tunnel       20: Port Type                 Tunnel

UTP  6: Port Priority (PRI)          0          Mngmnt 21: Port Priority (PRI) 0
      7: PVID (Port VLAN ID)        2          22: PVID (Port VLAN ID)    2
      8: Tagged Packets Use          PVID        23: Tagged Packets Use      PVID
      9: Ingress Security            Low         24: Ingress Security          Low
     10: Port Type                   Tunnel       25: Port Type                 Tunnel

BP A 11: Port Priority (PRI)          0          Module Global Settings
      12: PVID (Port VLAN ID)        2          26: C-TAG (hex)           8100
      13: Tagged Packets Use          PVID        27: Q-in-Q (S-TAG) (hex)   8100
      14: Ingress Security            Low
      15: Port Type                   Tunnel

Enter Choice, Previous Screen(0), (H)elp, E(x)it >

```

SA

```

Tag VLAN Control - iConverter 10/100M2          iConverter, Serial Agent
Identifier -
Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

Fiber 1: Port Priority (PRI)          0          Module Global Settings
      2: PVID (Port VLAN ID)        2          16: C-TAG (hex)           8100
      3: Tagged Packets Use          PVID        17: Q-in-Q (S-TAG) (hex)   8100
      4: Ingress Security            Low
      5: Port Type                   Tunnel

UTP  6: Port Priority (PRI)          0
      7: PVID (Port VLAN ID)        2
      8: Tagged Packets Use          PVID
      9: Ingress Security            Low
     10: Port Type                   Tunnel

Mngmnt 11: Port Priority (PRI)          0
      12: PVID (Port VLAN ID)        2
      13: Tagged Packets Use          PVID
      14: Ingress Security            Low
      15: Port Type                   Tunnel

Enter Choice, Previous Screen(0), (H)elp, E(x)it >

```

### 4.3.9 VLAN Membership Table

The VLAN Membership Table lists the permitted VLAN ID (VID) for each egress port on the module. Only packets that are assigned a VID value that matches one of the egress port's VID memberships are allowed to egress through the port.

When the Ingress Security is set to High for a specific port, the membership table is used to list the VIDs of the packets that are allowed to ingress that port.

VLAN Membership is accessed by selecting option 3 from the *Port* configuration screen. The *VLAN Membership* screen will be displayed.

PI

```
VLAN Membership - iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

          VLAN ID (VID)      Fiber      UTP      BP A      BP B      Mngmnt

VLAN TABLE IS EMPTY

Add new entry (a), Delete entry (d), Edit entry (e), Clear table (c)

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

SA

```
VLAN Membership - iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

          VLAN ID (VID)      Fiber      UTP      Mngmnt

VLAN TABLE IS EMPTY

Add new entry (a), Delete entry (d), Edit entry (e), Clear table (c)

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

Initially the table is empty. To configure the ports with VLAN IDs, select option (a) from the *VLAN Membership* configuration screen.

PI

```
Membership Entry - iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

      VLAN Table Membership Entry 1
      -----

1: VLAN ID                2
2: Fiber Port Membership   No
3: UTP   Port Membership   No
4: BP A   Port Membership   No
5: BP B   Port Membership   No
6: Mngmnt Port Membership   No

7: Submit Entry As Defined

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

SA

```
Membership Entry - iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

      VLAN Table Membership Entry 1
      -----

1: VLAN ID                2
2: Fiber Port Membership   No
3: UTP   Port Membership   No
4: Mngmnt Port Membership   No

5: Submit Entry As Defined

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```



To add a VLAN ID to the membership table, select option *1* and enter the ID #. To associate the VLAN ID to a port, select the appropriate port option (*2 - 6*).

PI

```
Membership Entry - iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

      VLAN Table Membership Entry 1
      -----

+1: VLAN ID                100
+2: Fiber Port Membership   Yes
 3: UTP Port Membership     No
 4: BP A Port Membership    No
 5: BP B Port Membership    No
 6: Mngmnt Port Membership  No

*7: Submit Entry As Defined

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

SA

```
Membership Entry - iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

      VLAN Table Membership Entry 1
      -----

+1: VLAN ID                100
+2: Fiber Port Membership   Yes
 3: UTP Port Membership     No
 4: Mngmnt Port Membership  No

*5: Submit Entry As Defined

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

Once all the VLAN IDs have been assigned, select option 7 or 5 to submit the entries.

PI

```
VLAN Membership - iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number = 1      Slot Number = 1      Model Number = 8919N-0

          VLAN ID (VID)      Fiber      UTP      BP A      BP B      Mngmnt
1:          100              Yes       No       No       No       No

Add new entry (a), Delete entry (d), Edit entry (e), Clear table (c)

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

The VLAN membership entries are saved from the *Port* configuration screen, option 4.

**4.3.10 cNode Loopback**

The 10/100M2 has implemented Iometrix cNode Level 1 agent for testing performance metrics. The agent recognizes measurement packets and loops them back to the sending cNode device. Iometrix cNode equipment is required to obtain performance metrics.

cNode configuration is accessed by selecting option 10 from the *Port* configuration screen.

PI SA

```
cNode Control -iConverter 10/100M2          iConverter, Serial Agent
Identifier -

Chassis Number = 1      Slot Number = 2      Model Number = 8919N-0

1:      cNode Loopback      Disabled
2:      cNode Rate Limit    64 Kbps

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

From the menu, loopback can be enabled or disabled and the rate limit can be selected.

### 4.3.11 Port Statistics

The 10/100M2 module provides port statistics on both the fiber and UTP port.

The Port Statistics can be viewed by selecting option *P* from the **Module** configuration screen.

```
PI
Module - iConverter 10/100M2                               iConverter, Serial Agent
Identifier -

Chassis Number      = 1          Switch ON Condition      OFF Condition      H/W      Actual
Slot Number         = 1          1: Pause Enabled    Pause Disabled    Off      Off
Model Number        = 8919N-0    2: Fiber HDX        Fiber FDX         Off      Off
                                   3: UTP Manual        UTP Auto-Neg     Off      Off
                                   4: UTP 10 Mbps        UTP 100 Mbps     Off      Off
Serial Number       = xxxxxxxx    5: UTP HDX          UTP FDX          Off      Off
Manufacturing Date  = xxxxxxxx    6: Link Propagate   Link Segment     Off      Off
Product Revision    = x          7: Remote Fault     Normal           Off      Off
Software Revision   = xx         8: Symm Fault Det   Normal           Off      Off
LED
1: Power            = On          9: BP A Enabled     BP A Disabled    On       On
2: Power Supply 1   = Off         10: BP B Enabled    BP B Disabled    On       On
3: Power Supply 2   = Off         11: Not Available
4: Power Supply 3   = Off         12: Slave Only      Master/Slave     Off      Off
5: Fiber Link       = Off         13: Not Available
6: BP Master        = On          14: Not Available
7: UTP 10 Link      = Off         15: Not Available
8: UTP 100 Link     = Off         16: Not Available
9: UTP FDX          = Off         OAM settings:
                                   17: IP Protocol State On
                                   18: Management Mode   Secure OAM
Toggle Switch(1-16), (I)dentifier, (R)eset, (H)elp, (P)ortStat, Port(C)tl > P
```

```
PI SA
Port Statistic
Module - iConverter 10/100M2                               iConverter, Serial Agent
Identifier -

Chassis Number      = 1
Slot Number         = 1
Model Number        = 8919N-0

Port Statistics
-----
Rx Bytes            Fiber      UTP
Rx Packets          0          0
Rx Total Packets    0          0
Tx Bytes            0          0
Tx Packets          0          0

Enter Choice, Previous Screen(0), (H)elp, E(x)it >
```

To refresh the Port Statistic screen, press <ENTER>.

## 5.0 10/100M2 SPECIFICATIONS

	Plug-in Module	Standalone Tabletop	Standalone Wall-Mount
Description	10/100BASE-TX UTP to 100BASE-FX Fiber Media Converter with integrated management		
Protocols	10BASE-T, 100BASE-TX,100BASE-FX with 2048 bytes max. frame size		
Cable Types			
UTP	EIA/TIA 568A/B, Category 5 and higher		
Fiber	Multimode: 50/125, 62.5/125, 100/140 um, Single-mode: 9/125 um		
Serial	RS-232, 22 to 24 AWG, 12 to 50 pF/ft.		
Connector Types			
UTP	RJ45		
Fiber SFP: Dual Fiber: Single Fiber:	LC SC, ST, LC, MT-RJ SC		
Serial	Mini DIN-6 female, mini DIN-6 male to DB-9 female adapter included		
Controls	DIP-Switches and LEDs		
802.1p Priority Levels and VID Priority Level Groups	4 Levels (PRI 0-1, 2-3, 4-5, 6-7)		
Power Requirements			
DC Power	0.9A @ 3.3VDC	Nominal: 0.5A @ 9VDC Voltage Range: 8 - 15VDC	
DC Power Connector	Power supplied by backplane	2.5mm Barrel Connector or Terminal Connector	
AC Power Adapter [US]	N/A	100-120VAC/60Hz 0.06A @ 120VAC	
AC Power Adapter [Universal]	N/A	100-240VAC/50-60Hz 0.06A @ 120VAC	
Dimensions	W: 2.8" x D: 4.5 "x H: 0.85"	W: 3.1" x D: 4.8" x H: 1.0"	W: 3.8" x D: 4.8" x H: 1.0"
Weight			
without power adapter	8 oz.	1 lb.	
with power adapter	N/A	1.5 lb.	
Compliance	UL, CE, FCC Class A		
IP-Based Management	Telnet; SNMPv1, SNMPv2c, SNMPv3		
Temperature			
Operational - Commercial	0 to +50°C		
Operational - Wide Range	-40 to +60°C		
Operational - Extended	-40 to +75°C		
Storage	-40 to +80°C		
Humidity (non-condensing)	5 to 95%		
Altitude (Operational)	-100m to 4,000m		
MTBF [hrs]			
without power adapter	550,000		
with power adapter [US]	N/A	250,000	
with power adapter [Unv]	N/A	100,000	

## 6.0 TROUBLESHOOTING GUIDE

### 6.1 OVERVIEW

The 10/100M2 module has several LED indicators available to assist in the determination of problems. Refer to Section 3.5, Verify Operation, for LED definitions.

#### 6.1.1 Power Issues

**Problem:**

*The Power LED does not illuminate after installation is complete or no LED indicators are ON*

**Possible Causes:**

A. For standalone modules, confirm that the power supply is connected to both the module and the AC or DC power source. If Power LED is still not illuminated, use a voltmeter and check the voltage of the power source (AC/DC converter used with the standalone unit should measure between 9 -15 VDC no load at the barrel connector).

B. For plug-in module, confirm that the chassis is connected to an AC or DC power source. If the Power LED is still not illuminated, remove the module and verify the operation of other modules in the chassis. If power is present and the module will not turn ON, replace the module.

C. The plug-in module requires ~ 3.3 watts (3.3VDC @ 1.0 amps) for normal operation. The AC Power Supply in a 19-Module Chassis can supply ~ 60 watts (3.3VDC @ 18amp). A fully loaded 19-Module chassis of 10/100M2 modules will require two power supplies for standard operation. This condition will cause the power LED not to illuminate.

#### 6.1.2 Fiber Issues

**Problem:**

*The Fiber Optic link LED does not illuminate after installation is complete.*

**Possible Causes:**

A. Verify the Link Mode selection is set to Link Segment (LS). Until a stable link is established, leave the Link Mode configured for LS. After a Link presence is established, the Link Mode selection can be modified.

B. Confirm that the fiber optic cable is properly connected to the *iConverter* 10/100M2 and the remote fiber optic device. Connecting the fiber between the Tx of the far end to the Rx on the near end will cause the P1 LED on the near end to illuminate (only when the link mode is configured for Link Segment). Completing the connection will cause the far end P1 LED to illuminate.

C. Confirm that the fiber cable type matches the fiber transceiver type (multimode, single-mode) on the *iConverter* 10/100M2.

D. If using a dual-fiber model, confirm that the transmitter (Tx) is attached to the receiver side of its link partner, and that the receiver (Rx) is attached to the transmitter. A optical power meter will assist in determining which cable should be connected to the Tx and Rx of the module. To insure proper operation, a minimum of -30dBm must be present at the fiber optic receiver.

E. If using a single-fiber model, confirm that the Tx wavelength on the *iConverter* 10/100M2 matches the Rx of the connected fiber optic device. Single-fiber units transmit and receive at different wavelengths (1510nm/1310nm). Verify the model numbers to insure proper compatibility.

### 6.1.3 UTP Issues

**Problem:**

*The UTP link LED does not illuminate after installation is complete.*

**Possible Causes:**

- A. Confirm that the UTP cable is connected properly to the *iConverter* 10/100M2 and the attached UTP device. Once a connection has been established between the *iConverter* and its link partner (switch or workstation), the UTP “10/100” LED should illuminate. If the LED does not illuminate, check the Link Mode configuration. A link mode other than Link Segment may cause the UTP “10/100” LED not to turn ON.
- B. Verify the *iConverter* 10/100M2 UTP port is configured with the proper settings based on the attached device (AN or MAN, 10 or 100, HD or FD).
- C. Verify the distance between the *iConverter* and the link partner is within 100 meters.
- D. Confirm that the UTP cable pin-out is correct (EIA/TIA-568-A). The module has auto-crossover capability, so it will accept either a straight-through or crossover cable.

**NOTE:** If corrective actions do not resolve your situation, please contact Omnitron Systems Technical Support.

## **7.0 WARRANTY**

This product is warranted to the original purchaser against defects in material and workmanship for a period of TWO YEARS from the date of shipment. A LIFETIME warranty may be obtained by the original purchaser by REGISTERING this product with Omnitron within 90 days from the date of shipment. TO REGISTER, COMPLETE AND MAIL OR FAX THE ENCLOSED REGISTRATION FORM TO THE INDICATED ADDRESS. Or you may register your product on the Internet at <http://www.omnitron-systems.com>. During the warranty period, Omnitron will, at its option, repair or replace a product which is proven to be defective.

For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge to return the product to Buyer's designated US address using Omnitron's standard shipping method.

### **Limitation of Warranty**

The foregoing warranty shall not apply to defects resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or

tampering with equipment (including removal of equipment cover by personnel not specifically authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance.

No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose.

### **Exclusive Remedies**

The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

### **Technical Support**

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